

ABSTRACT OF THE DISCLOSURE

A method of controlling an external-cavity tuneable laser which has a wavelength-elective tuneable mirror, in which wavelength selectivity is achieved by an electrical signal provided by an alternating voltage. The tuneable mirror has a liquid crystal material, a diffraction grating and a planar waveguide optically interacting with the grating. The diffraction grating and the waveguide form a resonant structure that reflects only a selected resonance wavelength from among all the other wavelengths impinging thereon. Depending on the amplitude of the voltage applied to the tuneable mirror, the tuneable mirror reflects radiation only at a given wavelength. The lasing output wavelength of the laser is selected to correspond to the resonance wavelength of the tuneable mirror. Accurate selection of the emission wavelength (frequency) of the tuneable laser by the tuneable mirror can be derived from the analysis of the signal modulation induced by the AC voltage applied to the tuneable mirror.